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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/814,571

03/31/2004

Gregory S. Clemons

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02/07/2007

Todd M. Becker

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Seventh Floor

12400 Wilshire Boulevard

Los Angeles, CA 90025

EXAMINER

PARKER, FREDERICK JOHN

ART UNIT

PAPER NUMBER

1762

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/07/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Supplemental
Office Action Summary

Application No.

10/814,571

Applicant(s)

CLEMONS, GREGORY S.

Examiner

Frederick J. Parker

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1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 11 and 21-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 11 and 21-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>10-26-06</u> | 6) <input type="checkbox"/> Other: _____ |

SUPPLEMENTAL DETAILED ACTION

This non-final supplemental Office Action is based upon the translation of 58-100121.

Response to Amendment

1. Applicants arguments regarding the Examiner's interpretation of the Epstein reference of the previous Office Action are persuasive; accordingly, the previous prior art rejections under 35 USC 102 & 103 are withdrawn and replaced by those below:

Claim Rejections - 35 USC § 112

The amendments in response to the 35 USC 112 rejections of the Previous Office Action are acknowledged and appreciated, and the Examiner withdraws the rejections.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1,3-8, 21,23-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano et al in view of Dow et al US 3919377.

Kano teaches forming LCD alignment films which provide advantages over conventional rubbing forming methods. A polymeric compound is applied onto a glass (transparent), ceramic, or other base (claims 1,2,21,23) by means including spin coating (claim 4) and printing, which **can** (and therefore optionally) be conditioned by drying via heat to remove solvent (claims 1,26). As shown in fig. 5, base 12 having polymer coating 24 thereon is placed on pedestal 46, wherein upper plate 44 bearing mold plate 52 containing a profile of grooves and ridges (shown to be triangular/ a triangular spaced profile) is impressed into the coating to provide a pattern of

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concavities and convexities (e.g. embossing) therein of regular depth, prior to raising of the plate

44. Col. 8, 8-44. Oscillation of the plate tool containing a profile of grooves and ridges is not cited.

Dow et al teaches methods of grooving a polymeric sheet/ film by numerous embossing means including a deliberate comb-like structure composed of one or more rows of needles which are dragged across the polymer surface to form a desired pattern of grooves, without pattern limitation. The specific teachings of col.2, line 61- col. 3, line 4 include oscillation of the needles during the grooving process, which necessarily produces a profile of ridges and grooves. The film may be from a hot melt forming method and therefore of raised temperature relative to ambient per claims 7,27, although it is apparent some polymerization has occurred to maintain the film integrity per claims 8,28. Since Kano teaches plate embossing means to produce the same effect, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kano by replacing the plate embossing means with the oscillating needle grooving means of Dow et al because of the expectation of a similar outcome to form LCD alignment films since both means are known for applying grooves/ridges in polymer film materials.

4. Claims 2,11,22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano et al in view of Dow et al and further in view of Hirai et al US2006/0050187 (EFD 10-20-03)

Kano et al and Dow are cited for the same reasons previously discussed, which are incorporated herein. PI or PVA are not cited as polymer film materials.

However, Hirai teaches that polyimide (PI) or polyvinyl alcohol (PVA or PVOH) per claims 2,22 are commonly applied as polymer films on bases which are used in LC alignment films, see

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[0068]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kano et al in view of Dow by substituting the polymer film material of Kano with the PI or PVA film material of Kirai et al because both are established in the art as polymer film materials for the application of forming LC alignment films.

Further, Hirai also teaches in [0078-0080] to embed by embossing hard particles such as alumina, zirconia, etc (which are inherently abrasive, alumina being a conventional constituent of grinding media or papers) for protective as well as anti-glare properties of concavo-convex structures per claim 11. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Kano et al in view of Dow by substituting film materials and incorporating particles during embossing as disclosed by Hirai to produce concavo-convex grooved alignment films with hardened/ protective surfaces to prevent wear on alignment surfaces.

5. Claims 1,3-8,21,23-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano in view of Katsuyuki JP 58-100121 (translation).

Kano teaches forming LCD alignment films which provide advantages over conventional rubbing forming methods. A polymeric compound is applied onto a glass (transparent), ceramic, or other base (claims 1,2,21,23) by means including spin coating (claim 4) and printing, which **can** (and therefore optionally) be conditioned by drying via heat to remove solvent (claims 1,26). As shown in fig. 5, base 12 having polymer coating 24 thereon is placed on pedestal 46, wherein upper plate 44 bearing mold plate 52 containing a profile of grooves and ridges (shown to be triangular/ a triangular spaced profile) is impressed into the coating to provide a pattern of

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concavities and convexities (e.g. embossing) therein of regular depth, prior to raising of the plate

44. Col. 8, 8-44. Oscillation of the plate tool containing a profile of grooves and ridges is not cited.

Katsuyuki teaches to apply fine alignment grooves to an LCD surface comprising a polymer (polyester) film 8 using arc-shaped circumferential grooved devices 11' which are rocked ("oscillated") and pressed into the surface while heating (clms 7,27) to provide an orienting component of a plurality of microscopic grooves (page 4, bottom; page 8, top; fig. 5).

Polymerization necessarily occurs to maintain the film integrity and shape, per claims 8,28.

Since Kano teaches forming such a profile of grooves and ridges to form alignment films using mold plates, and Katsuyuki teaches to make such profiles using an equivalent rocking/ oscillating tool 11', it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Kano by substituting the mold plate press with the rocking tool of Katsuyuki because of the expectation of producing equivalent alignment grooves on the surface. Substitution of equivalents requires no express motivation to combine; In re Fount 213 USPQ 532; In re Siebebritt 152 USPQ (CCPA 1967).

6. Claims 2,11,22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano et al in view of Katsuyuki JP 58-100121 (translation) and further in view of Hirai et al US2006/0050187 (EFD 10-20-03)

Kano et al and Katsuyuki are cited for the same reasons previously discussed, which are incorporated herein. PI or PVA are not cited as polymer film materials.

However, Hirai teaches that polyimide (PI) or polyvinyl alcohol (PVA or PVOH) per claims 2,22 are commonly applied as polymer films on bases which are used in LC alignment films, see

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[0068]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kano et al in view of Katsuyuki by substituting the polymer film material of Kano with the PI or PVA film material of Kirai et al because both are established in the art as polymer film materials for the application of forming LC alignment films.

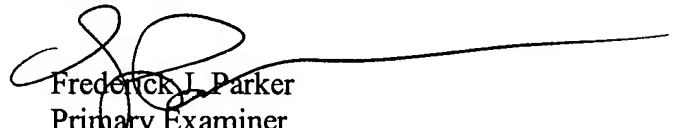
Further, Hirai also teaches in [0078-0080] to embed by embossing hard particles such as alumina, zirconia, etc (which are inherently abrasive, alumina being a conventional constituent of grinding media or papers) for protective as well as anti-glare properties of concavo-convex structures per claim 11. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Kano et al in view of Katsuyuki by substituting film materials and incorporating particles during embossing as disclosed by Hirai to produce concavo-convex grooved alignment films with hardened/ protective surfaces to prevent wear on alignment surfaces.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frederick J. Parker whose telephone number is 571/ 272-1426. The examiner can normally be reached on Mon-Thur. 6:15am -3:45pm, and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571/272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Frederick L. Parker
Primary Examiner
Art Unit 1762

fjp